HERMAN ANDREAS LOOS.

THE death of Dr. Herman Andreas Loos which has already been noticed in these columns, adds another to the long list of men of science whose lives have been blotted out by the scourges of the tropics.

Dr. Loos, though a very young man, was a chemist of exceptional promise. He was granted the degree of Bachelor of Science by the College of the City of New York in 1895. In 1897 he entered the School of Chemistry of Columbia University. When temporary business reverses removed the available funds for the completion of his education, he put his shoulder to the wheel and for two years before he entered Columbia taught in both the day and the night schools of this city. While doing his graduate work in the University he ably filled the instructorship in Chemistry in the East Side Evening High School. As an honor for his ability and perseverance he was awarded the University Fellowship in Chemistry for 1899–1900.

His principal contributions to the literature of chemistry are: 'The Electrolytic Determination of Zinc in Amalgam' (thesis for M. A.); 'A Study on the Metallic Carbonyls and their Decomposition (*School of Mines Quarterly 21*, 182); 'The Decomposition of Nickel Carbonyl in Solution' (*Journal American Chemical Society 22*, 144); 'A Study on Colophony Resin' (thesis for Ph.D.). In the study on Colophony Resin he has decided two controverted points, viz: that abietic acid will form an anhydride on heating, and that it is not an oxidation product of turpentine. He has also developed a new method for the preparation of pure abietic acid and established its formula by a number of analyses. Many new salts were prepared and their decomposition both by water and sunlight, noted. The whole work is of great theoretical and practical interest.

Immediately after receiving his degree Dr. Loos was appointed assistant in analytical chemistry in Columbia University. He resigned this position, however, to accept a flattering offer from the Copper Corporation of Chili, and it was while en route to Chañaral that he was stricken with yellow fever, of which he died July 17th.

At the age of twenty-four, by his own efforts, he had earned an education and established for his name an honorable place in the literature of his profession. No finer tribute can be paid to his energy and ability and ambition. Strange indeed must be one's thoughts when it is realized that the victims of yellow fever on board the steamship *Chili* were Italians or Chinese laborers with the one exception, the brilliant, energetic, educated Dr. Loos.

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COLUMBIA UNIVERSITY,
September 1, 1900.

SCIENTIFIC BOOKS.

Photometrical Measurements and Manual for the general Practice of Photometry with especial Reference to the Photometry of Arc and Incandescent Lamps. By WILBUR M. STINE, Ph.D. New York, The Macmillan Company.

The scope of this little manual is indicated in its subtitle. The arrangement and proportioning of the material look always toward electric light photometry. Subjects which have a scientific, rather than an industrial interest, like spectrophotometry, are briefly dealt with, or omitted altogether, and the gas-engineer will find no reference to the special problems with which he has to struggle. Within the limits set by himself, Dr. Stine has produced a useful book. Less compact than Krüss, less comprehensive than Palaz, it is perhaps more directly adapted to the student than either. The material is judiciously selected, the discussions are clear and careful, the bibliographical references amply sufficient for the purposes of the book.

Some two-thirds of the volume are occupied in discussion and criticism of photometric instruments and standards of light, thirty or forty pages are given to general and theoretical

considerations, and the remainder is devoted to practical suggestions and directions.

In the discussions of photometric apparatus, such types have been selected as have been shown by experience to be really useful. Among these, the Bunsen screen holds easily the first place, from actual use, convenience, and sensitiveness, though attention might well have been called to its two notable weaknesses:

1. That it violates a fundamental principle of photometric construction, namely, that the portions of the photometric screen which are used for comparison should be illuminated each by one only of the lights to be compared, and not by both. The violation of this principle renders it possible, as is shown in the analytic discussion, to make settings in any one of three ways, which may give quite different readings, so that agreement is only obtained (and not surely even so) by reversing the instrument. How many users of the Bunsen screen for industrial purposes habitually reverse their photometers?

2. That the ordinary binocular use of this instrument is attended by the possibility of a considerable constant error. This is indeed pointed out on page 210, but is of sufficient importance to deserve mention in the description of the photometer itself.

It is questionable also whether the old shadow photometer is not too hardly dealt with. The illustration on page 54, though similar to that generally given in books on the subject, affords no idea of the proper use of the instrument. When arranged in the most advantageous manner this photometer becomes convenient in use to an extent hardly approached by any other form, and sufficiently sensitive for most work.

The bolometer, as a photometer, is dismissed with a few lines, yet it is worth noting that while energy measurers—like the bolometer—which can be made to register their results mechanically, do not measure the physiological sensation of light, yet for certain purposes they may be most useful. The variation in brightness of a light, within not too large limits, takes place generally without changing materially the character of the light, and hence is proportional to the corresponding change in energy. Such questions as the steadiness of a standard can be investigated by means of a bolometer with far more precision than by any photometric arrangement. No photometric indictment against the standard candle has ever approached in severity the curves obtained by Nichols and Sharp, in the work referred to by the author.

The method is recommended in the chapter on arc light photometry, of calibrating an incandescent lamp at white heat, by comparing in succession lights of higher and higher incandescence, starting with the ordinary yellowish standard, until through a series of steps the required limit is reached. This is a questionable method in practice. As the change of color in the successive steps is always in the same direction, from yellow toward white, errors made on account of the differing colors of the lights are likely to be always in the same direction, and therefore cumulative. I have found it very difficult to make a series of measurements of this kind tally in their final results with a direct comparison between the limits of the series made with a flicker photometer.

But these are small questions and affect but little the value of a book which may be recommended to students of the subject as a safe and efficient guide.

FRANK P. WHITMAN.

LIVERPOOL MARINE BIOLOGICAL COMMITTEE'S MEMOIRS.

NUMBERS II. and III. of the Liverpool Marine Biological Committee's memoirs have recently come to hand. It was hardly to be expected that the standard of scientific excellence set by No. I. of the series, on *Ascidia* (see SCIENCE, January 19, 1900), written by the most experienced ascidiologist living, could be reached by all succeeding numbers. If, however, the two now under review may be accepted as establishing the quality of those that are to be prepared by specialists less distinguished than is Professor Herdman, the writer of the first number and editor of the series, a set of very valuable little books is to be the outcome of this unique undertaking.

Their usefulness will be by no means restricted to English laboratories of elementary